



THE PINHAS SAPIR CENTER FOR DEVELOPMENT  
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Work Histories of Israeli  
Men and Women, 1983-1995

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The paper can be downloaded from <http://econ.tau.ac.il/sapir>

## **Abstract**

This study examines the extent, duration and timing of employment breaks amongst a large representative sample of Jewish workers in Israel over a 13 year time period, 1985-1995. Work histories are constructed from a new joint database, unique in Israel, which was derived from a linkage of 1995 Population Census data with monthly employment records of the National Insurance Institute. The paper focuses on gender differences in work history patterns and, within each gender, breakdowns are provided by ethnic origin, education, marital status and age.

While most of the results are both expected and compatible with current economic theories of household behavior, some of the findings of the study are less expected, particularly those relating to the considerable amount of intermittent employment found amongst male workers. Also, women's labor market attachment is stronger than is generally presumed. Gender differences in employment interruptions are greater for younger than older workers.

This work is currently being complemented by a number of ongoing econometric studies utilizing the new joint database on work histories. These include an examination of the correlates of employment breaks, the use of these new data on employment experience as a replacement for the traditional Mincer labor experience approximation and an examination of the effects of work breaks on human capital depreciation from non use.

## **Acknowledgment**

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## **1. Introduction**

Most empirical labor market research in Israel has been based on cross-sectional datasets such as the Census of Population, the Labor Force Survey and the Survey on Labor Force Mobility. No information on individual work histories (including the extent and timing of employment breaks) is provided in these surveys. Thus in common with most other countries, researchers in Israel lack information on labor force variables that are central to very many areas of labor market research, including the efficacy (and depreciation) of human capital investments and, given the greater incidence of intermittent labor force participation amongst women, gender issues.

While very little longitudinal labor force data are available in Israel, some limited progress that has been made in recent years in this regard. Panel data relating to three waves of Russian immigration for the years 1990-1993 provide some information on the labor market experience of new immigrants but they constitute a very small section of the labor force. Research by Stier (1998), based on individual labor force information from subsequent panels in the Labor Force Survey, analyses short-term transitions of women between alternative employment statuses; however, the data allow the generation of longitudinal data for a period of only about a year. An ongoing labor market survey to provide panel data is now being planned by the Central Bureau of Statistics (CBS), but it will take many years before longitudinal data are generated.

This paper, and the broader research program of which it forms part, aims at making some contribution towards filling this gap. This work is based on the construction of a new, combined database, which provides information on individual labor market histories, over a thirteen-year period. Individual background information on the 20 percent sample in the 1995 Population Census is matched with data on individual work histories (including employment breaks) from National Insurance Institute records. The method of the micro linkage of national insurance data to other data sources is not new in Israel and has been used fruitfully in the past. Indeed, one of the authors, extending a pioneering study by Borus (1977), matched national insurance wages and work history data over a seven year period with background information on a sample of graduates from alternative training courses. This linked data set was used to study the effectiveness of alternative training modes for youth in Israel (Ziderman, 1989). But the study related to a sample of only 1200 individuals. What is new in the micro data linking reported in this paper is the size and scope of the new database, covering some 20 percent of the population under scrutiny.

This combined database is used, in this paper, to describe patterns of intermittent employment histories in Israel, over the 13-year period 1983-1995. The descriptive statistical analysis examines differences in work pattern histories for groups of workers, defined by gender ethnic background, marital status, and age group.

## **2. Constructing the Data Base**

As in most other countries a single-data source providing individual labor market histories, together with other socio-economic information, is unavailable in Israel, particularly for a large representative sample of the population. A unique opportunity

to construct such a database was provided by the “1995 Census Research and Analysis Program” of the CBS. Under this program the Bureau undertook, for the authors, the complicated task of linking two large micro data sets - individual work histories from the National Insurance Institute (NII) database, with socio-economics data relating to a sample of individuals drawn from the 1995 Population Census.

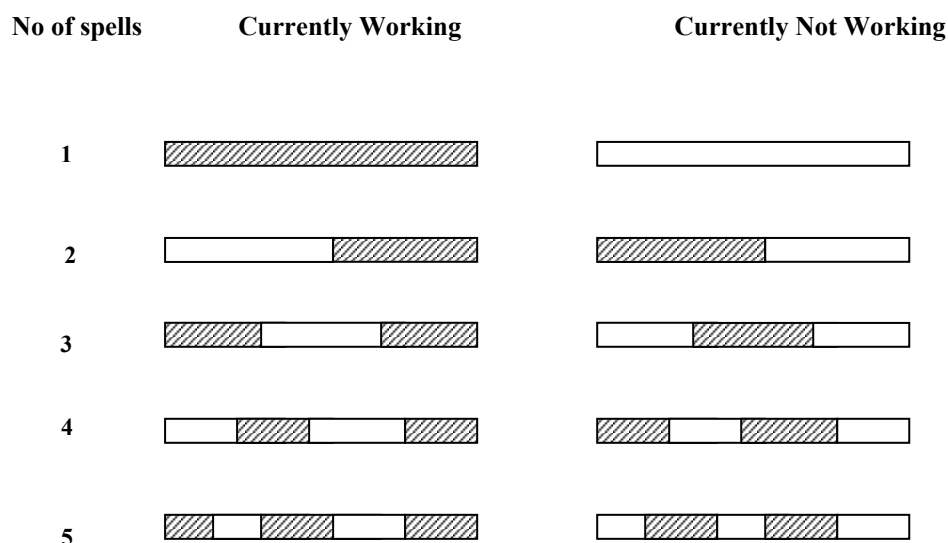
The NII receives information on individuals’ employment start and finish dates for each period of continuous work. A work break was defined as non-work for at least one month. On the basis of this information, the timing and length of all periods of work and of work breaks was computed, month by month, for all individuals in the sample, both for those at present employed and for those experiencing a work break. For each individual in the sample, a vector of the timing and length of work periods and work breaks was recorded. Because of weaknesses in the NII data base for earlier years, these monthly work histories could be constructed only for a 13-year prior to the Census year: thus work histories covered the period 1983-1995. Work histories were linked to data on personal characteristics for a sample of individuals from the 1995 Census.

The Census of Population is the most comprehensive source of demographic and socio-economic data on the Israeli population. The extended questionnaire, filled out by 20 percent of the population, provides information, for all individuals aged 15+, on such items as marital status, labor force characteristics, schooling, ethnic background and incomes. Data from the 20 percent sample were matched with individual work profiles and earnings data from the NII, for a period of thirteen years. Successful matching of NII and Census data was achieved for some 544,000 individuals; this new joint data source constitutes a unique longitudinal data set on the work histories of a large representative sample of the Israeli population of working age.

The sub-sample drawn for the present study consists of 215,133 individuals, 104,240 men and 110,893 women; of these, 69.8 percent of men and 62.9 percent of women were currently working (December 1995). The rest were either unemployed or out of the labor force; neither Census data nor NII records distinguish between these types of non-work<sup>1</sup>. The sub-sample was restricted to Jewish individuals between the ages of 35 and 59. The lower age limit was chosen in order to exclude respondents who were under the age of 22 in 1983 (most Israelis serve in the army between the ages 18-21); the upper limit was set to include only individuals who had not reached formal retirement age (65 for men and 60 for women). Immigrants who had arrived in Israel before 1980 were also excluded from the sample.

### **3. Work History Patterns: Diagrammatic Representation**

To describe and contrast the work history patterns of various groups (defined by gender, ethnicity, marital status and age group) in following sections, we employ a diagrammatic device developed by Corcoran (1979) to describe the work history patterns of US women; this diagrammatic representation was also used for a similar study of work history patterns of women in Great Britain (Steward and Greenhalgh, 1984).



**Chart 1**  
**Typical Work History Patterns**

Note: Shaded areas of bars are continuous periods of work.  
Non shaded areas of bars are periods of non-work, of at least one month.

Chart 1 shows typical work history patterns. The bars cover the 13-year period for which data are available, ending in December 1995. Work history patterns are divided into one of five categories, based on number of spells in and out of work. A shaded area in the bars represents a period of continuous work (in-spell), while a non-shaded area is a period of non-work (out-spell), of at least a month duration.

The left-hand side of the chart relates to individuals “currently” employed (in December 1995). Workers in the first category worked continuously over the 13-year period preceding December 1995 (one spell). Workers in the second category were not employed for a period (one out-spell), followed by continuous employment (in-spell). In the third category (with three spells), continuous work is interrupted by a spell of non-work. Workers in the fourth (fifth) category experienced four (five) distinct spells of non-work and work. For workers in an additional category six (not shown in the chart), there were six or more separate spells of work and non-work. There may be some underestimation of the number and duration of non-work spells, to the extent that workers did not work for periods of less than one month. The right-hand side of the chart is similar, but relates to individuals who were not working in December 1995.

While the approach in this study parallels that used by both Corcoran and by Stewart and Greenhalgh (S&G), the data used in the present study are both more comprehensive and robust than those used in the previous ones. The earlier studies were strangely restrictive in scope, examining the work history patterns of women only, thus obviating gender comparisons (a central concern of the present paper). The work history data in the previous studies were collected by surveys and were based on

the memory of respondents, a potential source of error; the present study uses objective data supplied by employers, generated on a month-by-month basis. Related to this, defined periods of non-work were lengthy in the earlier studies (one year in Corcoran and three months in S&G), compared with one month in the present study, leading to greater accuracy in the measurement of non-work spells. On the other hand, the earlier studies ranged over the full period of potential work, since completing education; the present study is confined to a 13-year time horizon. The sample in the Corcoran study was restricted to individuals currently working, while our dataset and that used by S&G includes both individuals currently working and those not working.

#### 4. Gender Differences in Work History Patterns

As would be expected, our analysis shows considerable differences between the work history patterns of men and women (Table 1). Overall, during the 146 month period ending in December 1995, men worked 78.8 percent of the time on average, while women worked only 59.9 percent of the time. Current employment status (reported by the NII, as of December 1995) is seen to be an important core variable in explaining the percentage of time spent at work. Some 70 percent of men and 63 percent of women were currently employed in December 1995. Men classified as currently working had worked 89.9 percent of the time during the period of analysis, while men not working had worked only about half of the time (51.2 percent). The figures for women are lower: 78.3 for women currently employed and 28.1 percent for women not at work.

**Table 1**  
**Share of time spent in work or non-work during past 13 years (1983-1995), by gender**

	Men			Women		
	Currently employed	Not employed	All men	Currently employed	Not employed	All women
<b>Number of individuals in sample</b>	72,720	31,520	104,240	69,750	41,143	110,893
<b>Percentage</b>	69.8	30.2	100.0	62.9	37.1	100.0
<b>Share of time in work (%)</b>	89.3	51.2	77.8	78.3	28.1	59.7
<b>Share of time not in work (%)</b>	10.7	48.8	22.2	21.7	71.9	40.3

A more detailed examination of work histories is provided by examining the number of successive spells of employment (in-spells) and non-work (out-spells), experienced by individuals in the sample. Table 2 provides information on the frequency distribution of the sample according to number of spells, for the four sub-groups identified thus far. It is seen that women experience more work interruptions than men.

Examining first individuals who were currently employed in December 1995, over one third of men and less than 20 percent of women worked continuously during the 13-year period. One quarter of men and 17 percent of women experienced one

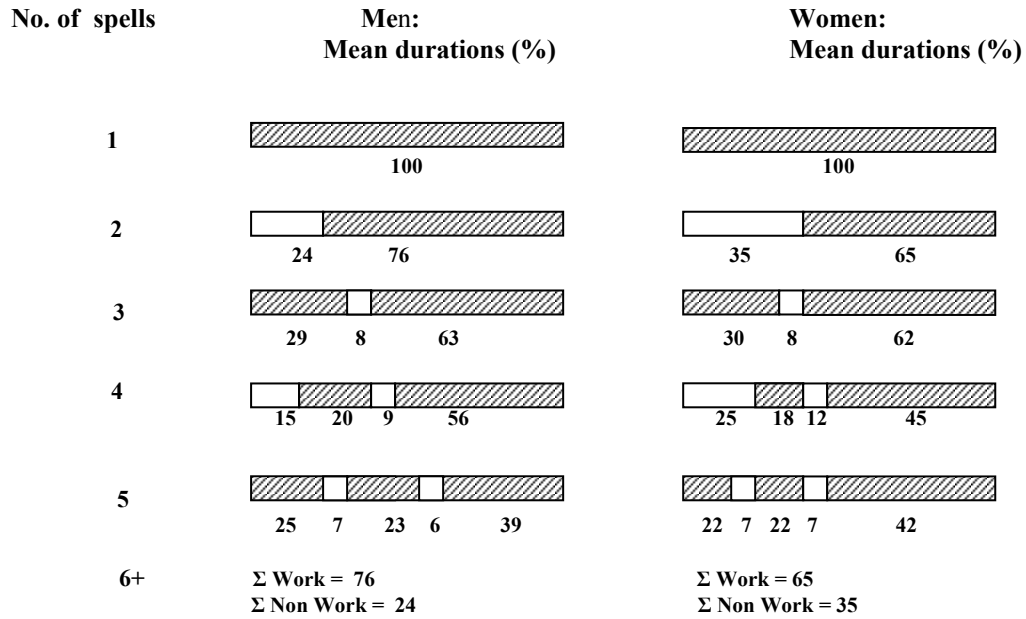
interruption (only three spells), while over 40 percent of women and only 23.6 percent of men had six or more spells (i.e. more than three out-spells). Overall, more than half of women had five or more spells compared with a third of men. Turning to the right-hand side of the table, relating to individuals currently not in work, again it is seen that men experience more in-spells than women. Some 30 percent of women and only 18.2 percent of men never worked over the 13-year period. Nearly a quarter of men but only 6.8 percent of women worked without interruption until the current non-work spell.

**Table 2**  
**Frequency distribution of number of spells experienced, by gender**  
**(%)**

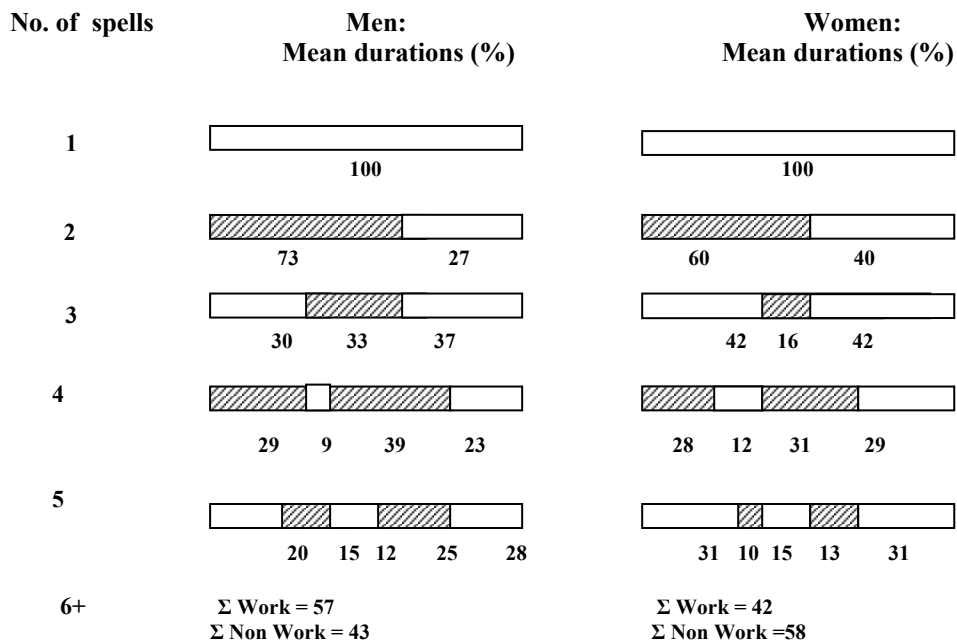
Number of spells (in-spells and out-spells)	Currently working		Not in work	
	Men	Women	Men	Women
One spell	34.0	18.9	18.2	30.3
Two spells	3.6	5.7	23.8	6.8
Three spells	25.0	17.4	4.0	9.5
Four spells	3.4	7.1	17.6	7.8
Five spells	10.3	10.6	3.5	7.3
Six spells or more	23.6	40.3	32.8	38.2
Total	100.0	100.0	100.0	100.0

Charts 2 and 3 (based on Table 3) delve deeper by examining the timing and average duration of spells for the two groups - currently employed and not in work. The charts are parallel in format to Chart 1. The relative size of each section of a bar (whether shaded or non-shaded) is equivalent to the share of that spell in the 13-year time period; these shares are marked below the relevant section of the bar, in each case. Overall, the charts confirm that men and women experience very different work histories. Not only are differences evident in the relative number of spells (Table 2) but there are differences by gender in the average duration of spells. Women experience more work interruptions and longer spells of non-work, than men. This basic difference holds for both the currently employed and non-employed sub-samples.

While most of these results are both expected and compatible available labor force data, some of the findings are less expected. This is particularly the case with regard to the considerable amount of intermittent employment found amongst male workers. Moreover, women's labor market attachment, while less than men's, is stronger than is generally presumed.



**Chart 2**  
**Work History Patterns of Men and Women Currently Working (1983-1995)**



**Chart 3**  
**Work History Patterns of Men and Women Currently Not Working (1983-1995)**



The particular work history patterns depicted in Charts 2 and 3 are largely the outcome of the underlying composition of the sample. The sample contains individuals with differing marital status, age, education level and ethnic origin. All of these factors will contribute to the differentiated work history patterns for the sub-groups in question. Indeed, on the basis of both economic theory and published data on labor force participation and employment rates by age and marital status, we would expect work histories also to differ significantly by marital status (and its interaction with gender) and by age group; in the following two sections we present more detailed analyses of work histories, broken down by marital status and age group. Before doing so, we provide some of the highlights of the analysis of work history patterns by ethnic origin<sup>2</sup>. In order to keep the analysis within manageable proportions, in the remaining analyses in this paper we consider only the group of currently employed workers, clearly the more interesting sub-sample from a labor market point of view<sup>3</sup>.

**Table 3**  
**Relative spell durations, by gender**  
**(%)**

Currently working			Not in work		
Work history	Men	Women	Work history	Men	Women
One spell - In-spell	100	100	One spell - out-spell	100	100
Two spells - out-spell in-spell	24 76	35 65	Two spells - in-spell out-spell	73 27	60 40
Three spells - in-spell out-spell in-spell	29 8 63	30 8 62	Three spells - out-spell in-spell out-spell	30 33 37	42 16 42
Four spells - out-spell in-spell out-spell in-spell	15 20 9 56	25 18 12 45	Four spells - in-spell out-spell in-spell out-spell	29 9 39 23	28 12 31 29
Five spells - in-spell out-spell in-spell out-spell in-spell	25 7 23 6 39	22 7 22 7 42	Five spells - out-spell in-spell out-spell in-spell out-spell	20 15 12 25 28	31 10 15 13 31
Six spells or more	Sum in-spells = 76 Sum out-spells = 24	Sum in-spells = 65 Sum out-spells = 35	Six spells or more	Sum in-spells = 57 Sum out-spells = 43	Sum in-spells = 76 Sum out-spells = 24

Israel is largely an immigrant society. In the fifty years since statehood, the Jewish population has grown at an average annual rate of 4.1 percent with net migration accounting for about half of this growth. Over this period over two and a half million Jews immigrated to Israel; the Jewish population stood at 4.55 million at the end of 1995. Labor market indicators, such a participation rates, unemployment and relative wages, indicate that Sephardi (Oriental) Jews stemming from North Africa, the

Middle East and Yemen fare less well in the labor market than their Ashkenazi (Western) counterparts - Jews coming from America and Europe.

To examine how far country of origin effects work history patterns, the sample (which excludes individuals who arrived in Israel after 1980) was divided into three country of origin groups. The Asia/Africa (A/A) group comprises individuals who were born in Asia or Africa or whose father had immigrated from these countries. Similarly, the Europe/America (E/A) group relates to individuals (or the father) who stemmed from Western countries. The shares of the A/A and E/A workers in the sample are similar, reflecting the relative size of these two groups in the population as a whole prior to the mass influx of immigrants from the former Soviet Union that began in the late 1980s.<sup>4</sup> A third, smaller group (I/I) contains individuals born in Israel and whose father too was born in Israel.

Tables 4 and 5, relating respectively to men and women currently working, confirm that overall the A/A group is subject to greater labor market interruptions and shorter overall period in employment, than are the other two groups. The differences are particularly marked for women.

**Table 4**  
**Work histories for men currently employed, by country of origin**  
**(selected information)**

Country of Origin	Total number in sample	Continuously employed (1 spell) (%)	5 or more spells (%)	Share of time in work (%)
Asia/Africa	35,464	28.4	38.4	88.3
Europe/America	32,214	39.2	29.2	90.6
Israel	5,042	40.3	33.7	88.9
<b>Total</b>	<b>72,720</b>	<b>34.0</b>	<b>33.9</b>	<b>89.3</b>

**Table 5**  
**Work histories for women currently employed, by country of origin**  
**(selected information)**

Country of origin	Total number in sample	Continuously employed (1 spell) (%)	5 or more spells (%)	Share of time in work (%)
Asia/Africa	32,994	14.1	56.1	74.3
Europe/America	31,768	23.3	45.5	82.2
Israel	4,988	23.3	50.2	80.5
<b>Total</b>	<b>69,750</b>	<b>18.9</b>	<b>50.9</b>	<b>78.3</b>

Only minor differences are discerned between the E/A and the second generation Israel groups. This result is expected. The fathers of the latter group were born in Israel prior to statehood (in 1948), at which time the small population consisted of mainly Jews of European origin.<sup>5</sup> Differences in the work history patterns of A/A and

E/A (and Israel) groups are the combined result of different average levels of human capital, differences in social norms and attitudes, and probably, also, discrimination.

The median of years of schooling for E/A workers is 13.1 compared with 11.3 for A/A workers. The difference is even more pronounced in terms of tertiary education: about a third of workers of E/A origin and less than 10 percent of A/A origin workers had at least some academic education (Central Bureau of Statistics, 1996). Oriental families are more traditional, have more children and retain more restrictions on female labor market activity.<sup>6</sup> While it is difficult to document, A/A workers probably face some degree of discrimination at the stages of hiring and layoffs, with the result of more interrupted work histories.

## **5. The Effect of Marital Status**

A growing literature, particularly over the last two decades, has shown that the labor market and the marriage market are interconnected. In this spirit, the section examines work history patterns according to marital status – married workers, divorced and widowed workers and single workers. Of the 72,750 men currently working, some 92 percent were married (in 1995); divorced/widowed workers and single workers each constituted some 4 percent of the sample<sup>7</sup>. As expected, the parallel figures for women differ from those relating to men: of the 69,570 employed women in the sample, 82 percent were married, 12 percent divorced/widowed and nearly 6 percent single. The effects of marital status on work patterns are shown in Tables 6, 7 and 8.

Table 6 examines, for both men and women, the effect of marital status on the share of time over the 13 year period that each sub-sample was either employed or out of work. Married men worked most; they were in work for 90.0 percent of the period, compared with 84.9 percent for divorced/widowed men and only 78.8 percent for single men. A reverse pattern is seen for women. Married women worked least (77.8 percent of the time), divorced/widowed women worked rather more (78.5 percent of the time) and single women very much more (86.2 percent of the time). Male differences in work histories according to marital status can be explained, in part, by age differences (see next section for a discussion of age effects). Younger workers work less and single male workers tend to be younger than workers in the other two groups. However for women, age effects and marital status work in opposite directions; single women are the youngest, yet are employed for a larger share of the 13-year time period than the other two groups. Had age effects been kept constant for women, the differences between the three marital status groups would have been even greater.

**Table 6**  
**Share of time spent in work or non-work by individuals currently employed,**  
**by gender and marital status**

Marital status	Men			Women		
	Number in sample	Share of time in work (%)	Share of time not in work (%)	Number in sample	Share of time in work (%)	Share of time not in work (%)
<b>Married</b>	66,746	90.0	10.0	57,444	77.8	22.2
<b>Divorced &amp; Widowed</b>	3,230	84.9	15.1	8,419	78.5	21.5
<b>Single</b>	2,744	78.8	21.2	3,887	86.2	13.8
<b>Total</b>	72,720	89.3	10.7	69,750	78.3	21.7

**Table 7**  
**Frequency distribution of spells experienced for individuals currently in work,**  
**by gender and marital status**  
**(%)**

Number of spells (in-spells and out-spells)	Men			Women		
	Married	Divorced & widowed	Single	Married	Divorced & widowed	Single
One spell	34.8	23.9	20.9	18.0	20.8	29.2
Two spells	3.6	2.7	4.2	5.8	5.5	3.6
Three spells	25.6	20.9	14.6	17.5	16.6	17.4
Four spells	3.4	3.8	4.9	7.3	7.0	4.3
Five spells	10.4	10.4	8.5	10.8	9.4	11.0
Six spells or more	22.2	33.3	46.9	40.6	40.3	34.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Frequency distributions of the various work patterns (Table 7) provide more detailed information on the various work patterns. The table shows that the two groups with largest numbers in continuous employment (one spell) were married men and single women; single men and married women experienced the most interrupted work histories.

More than a third of married men and only 20.9 of single men worked without interruption over the 13 years. At the other extreme, almost half of all single men (46.9 percent) and less than a quarter of married men (22.2 percent), had six or more spells.

The table shows smaller differences by marital status for women and the pattern runs in the opposite direction. Almost 30 percent of single women and only 18 percent of married women worked continuously. Over 40 percent of married women and 34.4 percent of single women experienced six or more spells. As noted, even larger differences between the marital status groups for women would have been recorded had the effects of age been held constant.

**Table 8**  
**Relative spell durations of those currently employed,**  
**by gender and marital status**  
**(%)**

Work history	Men			Women		
	Married	Widowed & divorced	Single	Married	Widowed & divorced	Single
One spell - in-spell	100	100	100	100	100	100
Two spells - out-spell	22	40	38	36	33	17
in-spell	78	60	62	64	67	83
Three spells - in-spell	29	33	29	30	29	32
out-spell	8	8	9	8	8	7
in-spell	63	59	62	62	63	61
Four spells - out-spell	14	21	23	25	26	19
in-spell	20	21	18	18	16	23
out-spell	9	9	11	12	12	8
in-spell	57	48	47	45	46	50
Five spells - in-spell	25	27	24	22	24	25
out-spell	6	7	7	7	7	6
in-spell	23	22	20	22	21	21
out-spell	6	6	8	7	6	6
in-spell	39	37	41	42	42	43
Six spells or more	Sum in-spells = 77 Sum out-spells = 23	Sum in-spells = 71 Sum out-spells = 29	Sum in-spells = 67 Sum out-spells = 33	Sum in-spells = 64 Sum out-spells = 36	Sum in-spells = 64 Sum out-spells = 36	Sum in-spells = 72 Sum out-spells = 28

Parallel results are found in the duration of spells analysis (Table 8). Duration of in-spells is highest for married men and lowest for single men; for the female sample, in-spell duration is largest for single women and lowest for married women.

Our results based on gender differences and marital status are consistent with a now sizeable and growing literature on the economics of the household. We consider first the differing work history patterns of married man and married women. Specialization and time allocation models – first developed by Gary Becker and collected in Becker (1991) – view marriage as a partnership formed to coordinate and facilitate household production and consumption activities. Division of labor and specialization within the household increase its productivity and constitute a key source of gains from marriage. Thus, it is more efficient for women to specialize in home production, and for men to specialize in labor market activity, if women’s earnings capacity is lower than that of men’s. Since, in this case, wives will undertake a greater share of household work than their husbands, the result is that married men rank highest, and married women lowest, in terms of measures of labor force attachment (in the present case, duration of in-spells and number of work interruptions).<sup>8</sup>

We focus now on single men and women; single men have the weakest attachment to the labor market and single women the strongest. This stark difference in work history patterns may be explained by the same specialization theory presented by Becker, to account for the employment behavior of married couples. Married men tend to specialize in labor market activities, leaving household duties to the wife, and sharing income with her (a pure income effect). In contrast, single men do not usually share income with a partner and single women do not benefit from transferred income from a spouse. Moreover, since single women tend to have fewer household duties (such as childcare) compared to their married and divorced/widowed counterparts, they are freer to devote more time to paid employment.

## 6. Age Group Analysis

To examine the effect of age on work history patterns, the samples of currently working men and women are split into 5-year age groups: 35-40, 41-45, 46-50, 51-55 and 56-60. Since work histories for all age groups relate to the same 13-year period, the labor market effects of macroeconomic variables are kept constant for all the age groups, thus facilitating an analysis of pure age effects.

The share of time in work increases with age, for both men and women (Table 9). Men in the 35-40 age group (in 1995) worked for 85.7 percent of the 13 years: the share of work rises steadily with age, reaching 91.8 percent for workers in the 56-60 age group. For women, a parallel upward movement in time in work is shown in the table (74.4 percent for the 35-40 age group, rising to 83.9 percent for the 56-60 age group), but the figures are lower than for men, for all age groups, as expected.

**Table 9**  
**Share of time spent in work or non-work by individuals currently employed, by gender and age group**

Age group	Men		Women	
	Share of time in work (%)	Share of time not in work (%)	Share of time in work (%)	Share of time not in work (%)
<b>35-40</b>	85.7	14.3	74.4	25.6
<b>41-45</b>	89.5	10.5	76.6	23.4
<b>46-50</b>	90.9	9.1	80.3	19.7
<b>51-55</b>	91.3	8.7	82.5	17.5
<b>56-60</b>	91.8	8.2	83.9	16.1
<b>Total</b>	89.3	10.7	78.3	21.7

More evidence on the tendency for more continuous employment at higher ages is provided in Table 10, presenting the frequency distribution of spells by age group and gender. The percentage of workers in continuous employment (one spell) rises steadily with age, from 24.9 percent for the 35-40 age group to 40.9 percent for the 55-60 age group; for the female sample, the comparable figures are 11.7 percent and 31.2 percent, representing an even steeper increase with age than for men.

At the other extreme (six or more spells) the pattern is reversed, showing greater continuity of employment for older workers. Nearly 40 percent of younger male workers experience six or more spells, compared with only 15 percent for the oldest group. Again, more women than men had interrupted work histories (six or more spells), with the figures falling as age group rises (nearly 55 percent of younger women, compared with a quarter of older women). A detailed examination of the relative duration of periods of work and non-work, parallel to Tables 3 and 8 did not indicate notable differences by age<sup>9</sup>.

**Table 10**  
**Frequency distribution of spells experienced for individuals currently in work,**  
**by gender and age group**

Number of spells (in-spells and out-spells)	Frequency distribution of sample in each spell category (%)		
	Age group	Men	Women
One spell	35-40	24.9	11.7
	41-45	35.1	15.9
	46-50	37.3	21.4
	51-55	38.3	26.5
	56-60	40.9	31.2
Two spells	35-40	4.9	4.0
	41-45	3.6	5.9
	46-50	3.0	6.7
	51-55	2.9	6.7
	56-60	2.6	6.0
Three spells	35-40	17.2	12.6
	41-45	25.4	16.8
	46-50	29.0	19.7
	51-55	29.5	21.2
	56-60	28.7	21.7
Four spells	35-40	4.9	6.4
	41-45	3.3	7.7
	46-50	2.9	8.0
	51-55	2.7	6.9
	56-60	2.3	6.4
Five spells	35-40	10.5	10.5
	41-45	10.4	11.4
	46-50	10.2	10.9
	51-55	10.3	9.6
	56-60	10.2	9.4
Six spells or more	35-40	37.6	54.8
	41-45	22.1	42.3
	46-50	17.6	33.2
	51-55	16.4	28.9
	56-60	15.2	25.4
Total	35-40	100.0	100.0
	41-45	100.0	100.0
	46-50	100.0	100.0
	51-55	100.0	100.0
	56-60	100.0	100.0

How may these differences in work histories by age group be explained? The differing work history patterns displayed for the various age groups may stem from various sources, in particular cohort effects and life cycle effects. It is not easy to identify the relative incidence of these two effects.

The sample represents five different age cohorts. Work values may differ for each cohort. Early on in their working careers, older workers may have been exposed to a different working environment than is current in the labor market for younger workers. Accepted work norms in the past may have given more emphasis to employment stability and long commitment to the same employer; older workers may still retain these work values. Again, work contracts have changed significantly in recent years, particularly affecting younger workers. There is a steady move away from tenured, fixed contracts to temporary and individual contracts, especially affecting younger groups. The number of workers attached to employment agencies (again mainly affecting the young) is growing fast. The share of unionized workers in the labor force has declined in recent years<sup>10</sup>, and it is likely that the incidence of union membership (and thus working under a collective bargaining contract) is greater amongst older workers, leading to more stable employment of older workers.

But life cycle effects no doubt also play a role in differentiating between the work history patterns of older and younger workers. Younger workers are more open to change and display a greater willingness to switch employers. The opportunity costs of a job change are lower for younger workers, given their lower wages and higher probability of finding a new job. The labor market imposes major difficulties on older workers wishing to find new employment; in addition, older workers are more conservative, staid in their ways and generally less inclined to move jobs.

## **7. Agenda for Further Research**

The mainly descriptive account of work history patterns, reported in this paper, is confined to the Jewish working population; in future work attention will be given to a number of sub-groups not included in this initial analysis including Israeli Arabs and more recent immigrants. In parallel, the work is currently being complemented by a number of ongoing econometric studies utilizing the new joint database on employment interruptions.

First, research is now underway on the causes or correlates of intermittent employment in Israel, with special emphasis on its extent and timing. Using multiple regressions models, particular attention is being given to the effect on intermittent employment (and non-work) of gender, age, ethnicity, education, occupation and sector of employment. The sample breakdown used in this paper, by marital status, ethnic group, and age, focuses our attention on each of these socioeconomic dimensions. However the observed effects are not net ones, as none of the other variables are held constant. The results of regression analysis can point to the direction, magnitude and significance of the effect of each of the variables, on the number of spells and the share of time in employment. These measures will complement the more descriptive results presented in this paper.



Second, the new measures of the extent and timing of employment breaks will be used as explanatory variables in a number of multivariable models, aimed at explaining various labor force phenomena. Empirical studies, using Mincer-type earnings functions, show that a variable measuring years of labor market experience has considerable explanatory power in accounting for earnings differentials across individuals. But because available data sets in Israel do not contain information on work histories, only proxy measures of years of experience (based on age and years of schooling) can be used. The legitimacy of this proxy variable depends on the absence of employment breaks, an assumption that was thought to be acceptable for men but not women. Evidence from the USA (Mincer and Polachek, 1974 and Mincer and Ofek 1982), from the UK (Joshi, 1987) and from this paper, shows that women, particularly married women, do exhibit greater employment intermittence than men. Because of the greater unreliability of proxy measures of labor market experience for women, many empirical labor market studies have limited their focus to males only.

But in addition, our results show that male intermittent employment is also sizeable, indicating that work history information should be taken into account in empirical research where labor force experience is used as an explanatory variable. Our new data set provides a more reliable measure of employment experience in Israel than has been available until now, albeit though limited to a 13 year time period.

Thirdly, a particular focus of our work is on the effects of work breaks on human capital investments. In a now classic paper, Mincer and Polachek (1974) argued that women earn less than men because women's human capital investment depreciate from non-use during their longer period (on average) of withdrawal from employment. A related issue is the relationship between employment breaks and career choice. In some occupations, work breaks may result in large penalties since these occupations require constant updating (medicine, law, computers); in others, (school teaching for example) established salary scales are related to years of seniority (experience) without penalties for periods outside the labor force. Our new data set will be used to probe these, and complementary human capital investment, issues in the Israeli context.

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## Appendix Tables

**Appendix Table 1**  
**Frequency distribution of spells experienced for individuals currently in work,**  
**by gender and country of origin**  
**(%)**

Number of spells (in-spells and out- spells)	Men			Women		
	Africa/Asia	Europe/America	Israel	Africa/Asia	Europe/America	Israel
One spell	18.9	29.9	26.4	8.3	15.8	14.7
Two spells	1.9	3.0	3.3	3.3	3.9	3.4
Three spells	18.1	17.8	11.1	9.6	12.8	8.9
Four spells	2.2	2.6	2.6	4.7	4.3	3.9
Five spells	7.3	7.3	6.2	5.9	7.7	6.4
Six spells or more	18.3	14.3	15.8	27.1	23.1	25.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

**Appendix Table 2**  
**Frequency distribution of spells experienced for individuals not in work,**  
**by gender and country of origin**  
**(%)**

Number of spells (in-spells and out- spells)	Men			Women		
	Africa/Asia	Europe/America	Israel	Africa/Asia	Europe/America	Israel
One spell	5.1	5.1	10.4	12.9	9.1	12.1
Two spells	6.8	7.4	8.8	2.0	3.1	3.0
Three spells	1.3	1.0	1.6	4.1	2.9	3.0
Four spells	6.6	4.1	3.4	2.8	3.1	2.7
Five spells	1.2	0.9	1.2	3.2	2.2	2.3
Six spells or more	12.1	7.3	8.9	16.1	11.8	14.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

**Appendix Table 3**  
**Relative spell durations for the currently employed,**  
**by gender and country of origin**  
**(%)**

Work history	Men			Women		
	Africa/Asia	Europe/America	Israel	Africa/Asia	Europe/America	Israel
One spell - in-spell	100	100	100	100	100	100
Two spells - out-spell in-spell	21 79	25 75	29 71	41 59	30 70	28 72
Three spells- in-spell out-spell in-spell	25 8 67	33 8 59	40 8 52	27 8 65	32 8 60	37 8 55
Four spells - out-spell in-spell out-spell in-spell	13 18 8 61	16 22 9 52	17 23 9 51	27 16 12 25	22 21 11 46	24 21 13 42
Five spells - in-spell out-spell in-spell out-spell in-spell	23 7 23 6 40	27 6 22 6 38	28 6 20 7 39	20 7 21 7 44	24 7 23 7 40	27 6 20 8 39
Six spells or more	Sum in-spells = 75 Sum out-spells = 25	Sum in-spells = 77 Sum out-spells = 23	Sum in-spells = 75 Sum out-spells = 25	Sum in-spells = 62 Sum out-spells = 38	Sum in-spells = 68 Sum out-spells = 32	Sum in-spells = 67 Sum out-spells = 33

**Appendix Table 4**  
**Relative spell durations for those currently not in work,**  
**by gender and country of origin**  
**(%)**

Work history	Men			Women		
	Africa/Asia	Europe/America	Israel	Africa/Asia	Europe/America	Israel
One spell - out-spell	100	100	100	100	100	100
Two spells - in-spell	73	74	73	55	64	62
Two spells - out-spell	27	26	27	45	36	38
Three spells - out-spell	30	29	32	44	40	38
Three spells - in-spell	31	38	33	14	19	19
Three spells - out-spell	39	33	35	42	41	43
Four spells - in-spell	25	34	41	25	32	34
Four spells - out-spell	9	9	8	12	11	12
Four spells - in-spell	42	36	28	32	30	24
Four spells - out-spell	24	21	22	31	27	29
Five spells - out-spell	20	19	24	31	28	28
Five spells - in-spell	14	18	14	9	12	9
Five spells - out-spell	12	11	10	16	14	17
Five spells - in-spell	24	26	25	12	15	18
Five spells - out-spell	29	25	26	32	31	28
Six spells or more	Sum in-spells = 56 Sum out-spells = 44	Sum in-spells = 60 Sum out-spells = 40	Sum in-spells = 56 Sum out-spells = 44	Sum in-spells = 60 Sum out-spells = 40	Sum in-spells = 46 Sum out-spells = 54	Sum in-spells = 45 Sum out-spells = 55

**Appendix Table 5**  
**Share of time spent in work or non-work by individuals currently not in work,**  
**by gender and marital status**

Marital status	Men			Women		
	Number in sample	Share of time in work (%)	Share of time not in work (%)	Number in sample	Share of time in work (%)	Share of time not in work (%)
<b>Married</b>	26,674	54.4	45.6	34,018	28.0	72.0
<b>Divorced &amp; Widowed</b>	2,190	27.6	72.4	5,164	29.6	70.4
<b>Single</b>	2,656	41.3	58.7	1,961	28.4	71.6
<b>Total</b>	31,520	51.2	48.8	41,143	28.1	71.9

**Appendix Table 6**  
**Frequency distribution of spells experienced for individuals currently not in work,**  
**by gender and marital status**  
**(%)**

Number of spells (in-spells and out-spells)	Men			Women		
	Married	Divorced & widowed	Single	Married	Divorced & widowed	Single
One spell	16.3	21.4	34.1	30.1	28.4	39.2
Two spells	26.2	14.6	8.4	7.0	6.0	6.7
Three spells	3.7	4.0	7.2	9.8	9.3	4.9
Four spells	19.1	12.8	6.4	8.1	6.6	6.8
Five spells	3.3	4.7	5.4	7.5	7.6	3.9
Six spells or more	31.4	42.6	38.5	37.5	42.2	38.4
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0

**Appendix Table 7**  
**Relative spell durations of those not in work,**  
**by gender and marital status**  
**(%)**

Work history	Men			Women		
	Married	Widowed & divorced	Single	Married	Widowed & divorced	Single
One spell - out-spell	100	100	100	100	100	100
Two spells - in-spell	74	70	59	61	59	62
Two spells - out-spell	26	30	41	39	41	38
Three spells - out-spell	28	38	36	42	43	35
Three spells - in-spell	38	14	17	16	26	23
Three spells - out-spell	33	48	47	42	41	42
Four spells - in-spell	29	31	26	28	32	34
Four spells - out-spell	8	11	10	12	11	10
Four spells - in-spell	40	33	29	31	31	30
Four spells - out-spell	22	25	34	30	26	26
Five spells - out-spell	19	21	24	30	29	25
Five spells - in-spell	17	11	10	10	10	10
Five spells - out-spell	11	15	12	15	16	18
Five spells - in-spell	28	17	15	14	12	12
Five spells - out-spell	25	35	38	31	32	34
Six spells or more	Sum in-spells = 60 Sum out-spells = 40	Sum in-spells = 50 Sum out-spells = 50	Sum in-spells = 43 Sum out-spells = 57	Sum in-spells = 42 Sum out-spells = 58	Sum in-spells = 41 Sum out-spells = 59	Sum in-spells = 50 Sum out-spells = 50

**Appendix Table 8**  
**Share of time spent in work or non-work by individuals currently not in work,**  
**by gender and age group**

Age group	Men		Women	
	Share of time in work (%)	Share of time not in work (%)	Share of time in work (%)	Share of time not in work (%)
<b>35-40</b>	46.2	53.8	30.8	69.2
<b>41-45</b>	52.0	48.0	27.6	72.4
<b>46-50</b>	53.6	46.4	28.1	71.9
<b>51-55</b>	54.3	45.7	26.8	73.2
<b>56-60</b>	53.2	46.7	26.2	73.8
<b>Total</b>	51.2	48.8	28.1	71.9





**Appendix Table 9**  
**Frequency distribution of spells experienced for individuals currently not in work,**  
**by gender and age group**

Number of spells (in-spells and out-spells)	Frequency distribution of sample in each spell category (%)		
	Age group	Men	Women
One spell	35-40	2.1	21.2
	41-45	17.2	27.6
	46-50	17.0	31.2
	51-55	16.7	36.5
	56-60	17.2	40.1
Two spells	35-40	14.4	4.2
	41-45	24.6	5.3
	46-50	27.8	7.5
	51-55	29.0	8.9
	56-60	30.6	10.0
Three spells	35-40	5.5	7.7
	41-45	4.4	10.1
	46-50	3.1	11.2
	51-55	3.0	10.1
	56-60	3.0	9.0
Four spells	35-40	11.2	6.1
	41-45	16.8	7.4
	46-50	21.4	8.1
	51-55	21.7	8.5
	56-60	22.5	9.9
Five spells	35-40	4.9	7.6
	41-45	3.6	8.5
	46-50	2.9	7.4
	51-55	2.7	6.5
	56-60	2.3	6.1
Six spells or more	35-40	43.0	53.3
	41-45	33.3	41.0
	46-50	27.8	34.6
	51-55	26.8	29.5
	56-60	24.4	24.9
Total	35-40	100.0	100.0
	41-45	100.0	100.0
	46-50	100.0	100.0
	51-55	100.0	100.0
	56-60	100.0	100.0

## Endnotes

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<sup>1</sup> Labor force participation rates for 1995 were 62.6 percent for men and 45.4 percent for women; unemployment rates for men and women, respectively, were 5.1 percent and 7.9 percent (Central Bureau of Statistics, 1996).

<sup>2</sup> Summary results only are presented for the country of origin (i.e. ethnic group) analysis. Tabulations with the full range of results of work histories differentiated by ethnic origin appear in Appendix Tables 1-4.

<sup>3</sup> Results for the non-employed sample by marital status and by age group are provided in Appendix Tables 5-9.

<sup>4</sup> The percentage of E/A workers grew dramatically after 1989, when almost a million immigrants from the former USSR arrived in Israel. This is not reflected in our sample, which excludes new immigrants who arrived in Israel after 1980.

<sup>5</sup> See Neuman (2003) for a comprehensive analysis of immigrant waves during the period 1882-1998.

<sup>6</sup> These cultural differences between the two ethnic groups reflect differing prevailing cultural norms concerning gender roles in relation to employment, childcare and household duties, between European/American and Asian/African countries. For example, the share of women in the labor force (in 1995) in such Western countries as Sweden (48 percent) and the US (47 percent) greatly exceeds that in India (12 percent) and in Saudi Arabia, a mere 8 percent. (Data from International Labour Office, Bulletin of Labour Statistics)

<sup>7</sup> Marital status is recorded for December 1995. Workers who were single in 1995 maintained this same status since 1983. However, those who were in the married or divorced/widowed category in 1995 might have experienced a change in marital status during the period 1983-1995.

<sup>8</sup> Our results are also consistent with the predictions of other theories in the economics of marriage, such as bargaining models (Manser and Brown, 1980), market models of marriage (Becker, 1973 and Grossbard-Schechtman, 1984) and the separate spheres bargaining model of Lundburg and Pollak (1993).

<sup>9</sup> Tables with relative spell durations, by gender age group, are available from the authors on request

<sup>10</sup> Falling from 8 percent in the beginning of the 1980s to about 50 percent in 1995 (Cohen et al, 2001)